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A ' HUMAN NEEDS ' DIET

1. THE COST OF A ' HUMAN NEEDS ' DIET

Our bi-annual survey of the cost of a ' human needs ' diet was undertaken this spring somewhat later than usually ; for instead of carrying it out at the middle of April we postponed it until the last week of May. The reason for this was that the reduction in the food subsidies decided upon by the Chancellor of the Exchequer in his last budget only took effect on the retail prices of food from the beginning of the new ration year, which started on May 22nd—two months earlier than in previous years—and it is desirable to have our figures of cost in this series as nearly as possible up-to-date when the articles appear in print.

We visited food shops in various districts of Oxford, Reading, and London, and collected our prices from the less expensive shops. Our diet schedule refers again to the ' human needs ' of food of a family of 5 persons, *viz.*, husband, wife, two children between 7 and 12 years old, and one child 5 years old. In November 1948, the outlay required for a similar diet would have amounted to 42s. 6d.; in May 1949, the cost of the diet was 48s. 8d. (Table I). However, only 9½d. of this derived from the increased cost of foods resulting from the reduction in subsidies, 5d. having been added to the cost of meat, 1¾d. to the cost of margarine, and 2½d. to that of cheese. The meat ration, which in November 1948 amounted to 1s. worth of meat per person per week, was in May 1949, 1s. 1d. worth of it, and we have assumed that with this outlay the family purchased the same quantity of meat in May as in November. Since the average price of meat was actually raised by approximately 4d. a lb., this presupposes the purchase of cheaper cuts of meat. However, it did not seem unreasonable to assume that a housewife who cannot afford to spend much on meat substitutes would want to maintain her meat ration at a reasonable size. A total outlay of 5s. 5d. on 3¾ lb. of meat would have allowed her to obtain, say, 2½ lb. of meat for roasting at about 1s. 7d. per lb. and 1¼ lb. of meat for stewing at 1s. 2d. per lb. In November we had assumed the purchase of about 2¾ lb. of roasting meat at 1s. 6d. and 1 lb. of stewing meat at 10d. In May 1949, the same cuts of meat would only have yielded for the family a total ration of 3 lb. 2 oz. at a weekly allowance of 5s. 5d. worth of meat. There seems to be a tendency for all housewives to purchase for roasting the most attractive cut, from the culinary viewpoint, that they can possibly afford, and we try to make allowance for it in our diet

TABLE I

Weekly ' Human Needs ' Diet for a Family of 5 Persons

	Quantity	Price per Unit[1] s.	d.	Changes since Autumn 1948 Quantity		*Outlay*	s.	d.
(*a*) Rationed Foods :								
1 Meat	3 lb. 12 oz.	1	5½			+		5
2 Bacon	10 oz.	2	0					
3 Margarine	1 lb. 14 oz.		10	—	5 oz.	—		*1*
4 Cooking Fat ...	10 oz.	1	0	+	5 oz.	+		*3¾*
5 Sugar	3 lb. 2 oz.		5					
6 Syrup	1 lb.		9½[2]					
7 Tea	8 oz.	3	6					
8 Cheese	10 oz.	1	2					
9A Eggs in shell ...	10 eggs		2½	+	7 eggs	+	*1*	*4*
9B Eggs, dried... ...				—	4 eggs	—		*10*
10 Cond. Milk, skimmed	2 tins		8	+	1 tin	+		*8*
Outlay on Group (*a*) ...		*16*	*10½*			+	*2*	*0¼*
(*b*) Fresh Milk :								
11A Ordinary	14 pt.		5	—	1½ pt.	—		*7½*
11B School	5 pt.		free					
Outlay on Group (*b*) ...		*5*	*10*			—		*7½*
(*c*) Main Carbohydrate Foods :								
12 Bread	21 lb. 14 oz.		4½	+	7 oz.	+		*1*
13 Flour	2 lb.		3¾					
14 Potatoes	21 lb.		1¾			+		*5¼*
Outlay on Group (*c*) ...		*8*	*4½*			+		*6¼*
(*d*) Fresh Vegetables *excl. potatoes* :								
15A Swedes				—	3 lb. 8 oz.	—		*8¾*
15B Carrots				—	3 lb. 8 oz.	—		*6*
15C Greens[3]	10 lb. 8 oz.		5	+	3 lb. 8 oz.	+	*3*	*1½*
15D Onions	2 lb.		5	+	1 lb.	+		*5½*
Outlay on Group (*d*) ...		*5*	*2½*			+	*2*	*4½*
(*e*) Other Foods :								
16A Peas, dried ...	8 oz.		10½	—	8 oz.	—		*4¾*
16B Haricot Beans ...	8 oz.		11	+	8 oz.	+		*5½*
17 Rolled Oats ...	2 lb. 8 oz.		7			+		*1¼*
18 Pearl Barley ...	6 oz.		7	—	2 oz.	—		*0¾*
19A Macaroni	8 oz.		9	—	8 oz.	—		*4½*
19B Semolina	11 oz.		7	—	5 oz.	—		*2¼*
20 Figs, dried	1 lb.		10	+	1 lb.	+		*10*
21 Jam (Plum) ...	6 oz.	1	2	—	10 oz.	—		*8¾*
22 Cocoa	4 oz.	1	3½			—		*0¾*
23 Condiments ...		1	0					
24A Herrings				—	3 lb.	—	*1*	*7½*
24B Kippers	2 lb. 7 oz.		11	+	7 oz.	+		*8*
24C Mackerels ...	3 lb.		9	+	3 lb.	+	*2*	*3*
25 Sausages	7 oz.	1	6	—	1 oz.	+		*0¾*
26 Tinned Carrots ...	1 tin		11½	+	1 tin	+		*11½*
Outlay on Group (*e*) ...		*12*	*4¾*			+	*1*	*10¾*
Total Outlay		**48**	**8**			+	**6**	**2**

[1] The price ' unit ' is : eggs in shell, one egg ; condensed milk, tin ; fresh milk, pint ; bread, loaf of 1¾ lb. ; cocoa, ¼ lb. packet ; condiments, total outlay ; tinned carrots, tin ; all other foods, lb. [2] Bought in 2-lb. tin. [3] Cabbage in November, 1948.

schedules, even though this may appear a somewhat loose interpretation of ' human needs '. It must, however, be borne in mind that when Mr. S. Rowntree compiled his diet before the war, such first-class protein foods as bacon, sausages, and cheese, which help to give variety to a diet, were plentiful and cheap.

The outlay in our schedule on cooking fat and margarine together rose from November 1948 to May 1949 by 2¾d., but a penny of this derives from our substitution of 5 oz. of cooking fat for 5 oz. of margarine, cooking fat costing 1s. a lb. and margarine only 10d. From December 5th, 1948, the ration of cooking fat per person per week was raised from 1 oz. to 2 oz. Since cooking fat is suitable for frying and margarine is not, the increased ration of cooking fat made it somewhat easier for the housewife to prepare inexpensive and palatable meals. If the family's full fat ration had been included in our schedule, *i.e.*, 2 lb. 3 oz. of margarine instead of only 1 lb. 14 oz., 15 oz. of bread could have been deducted from the diet. In this case its total cost would have been raised by another penny.

Except for margarine and for tea, of which latter in conformity with Mr. Rowntree's comparable ' human needs ' diet for 1936, we have included only 8 oz. for a family of 5 persons instead of their full ration of 10 oz. per week, all the specifically rationed foods are taken up in full in our schedule. Syrup and condensed milk—both included in Table I amongst the foods in group (*a*)—were rationed on ' points ', the former requiring 14 ' points ' for a 2-lb. tin and the latter 4 ' points' for a standard tin of skimmed and sweetened milk. Eggs were fairly plentiful in May, and the minimum obtainable per ration book per week appeared to be two eggs. Owing to the scarcity of meat foods, and in particular of inexpensive meat foods, 10 eggs per week for a family of 5 persons would probably have been bought even by a poor housewife and considered by her a necessity.

In May 1949, each person had an allowance of 6 food ' points ' per week, but only a small number of foods thus rationed were available in the shops, the main ones being sweet biscuits, condensed milk, and tinned veal loaf. No fancy foods such as sweet biscuits or tinned meat products, had a place in Mr. Rowntree's ' human needs ' diet, in which, on the other hand, all the milk included was skimmed condensed milk. We have assumed the purchase of two tins of such milk in our schedule for November. A tin of skimmed and sweetened condensed milk is equivalent to between 1⅔ pints and 1⅞ pints of skimmed fresh milk, with about 3½ oz. of sugar added per pint. Hence, although this milk has no appreciable content of fat, its calorific value per pint of fresh milk consistency, is about 1.6 times as high as that of fresh full cream milk.

The main increase in the cost of our ' human needs ' diet since November 1948, resulted from the seasonal increase in the cost of vegetables. Only in a few instances were grocers still found to offer old carrots, swedes, and parsnips, at prices ranging from 2d. to 3½d. per lb. We therefore considered it necessary to replace the 7 lb. of swedes and carrots included in our schedule for November by some other vegetables, *viz.*, 3½ lb. of greens, 1 lb. of onions, and a tin of carrots costing 11½d. We weighed the carrots without the liquid and found a tin to contain about 12 oz.; this probably corresponds to rather more than 1 lb. of fresh carrots. Since the vitamin content of spring greens tends to be rather high, the total quantity of approximately 13½ lb. of vegetables other than potatoes in our schedule for May should not compare too unfavourably with the 15 lb. of vegetables in our schedule for November.

Kippers were fairly plentiful in May, but herrings were seldom to be had. The kippers offered for sale were mostly packed in pairs and wrapped in cellophane, 1 lb. of these costing 11d., as against 9½d. for a lb. of kippers sold loose. We replaced the 3 lb. of herrings in the diet schedule for November, by 3 lb. of mackerel, 7 oz. of kippers, and 7 oz. of bread.[1] This replacement added 1s. 1¾d. to the cost of the diet in May.

A housewife who in May was able to obtain herrings in sufficient quantities, could have reduced the outlay on the diet by about 1s. 3d. Herrings were price-controlled at 6½d. a lb., and since they are more nutritious in spring than in autumn, mainly on account of their higher content of fat, 2¾ lb. of herrings in May are approximately equivalent to 3 lb. in November. The same reduction in cost could have been achieved by a housewife who managed to buy 7 lb. of old carrots and parsnips, and who used these vegetables in lieu of 3½ lb. of greens, 1 lb. of onions, and a tin of carrots.[2]

It should be noted that the prices of many of the foods enumerated in Table I do not represent the absolute minimum prices but rather those prices at which in any working-class district visited by us, a housewife would have been able to purchase the foods. Mackerel, however, were not price-controlled, and while very small fish could be obtained on occasion for less than 9d. a lb., the price charged for larger fish was sometimes higher than 9d. a lb. On the other hand, by purchasing kippers only when they were offered loose, it would have been possible to reduce their cost by 2d. per lb.

2. MODIFICATIONS OF THE ' HUMAN NEEDS ' DIET

Only 15 of the 30 ' points ' available to a family of 5 persons were utilized for foods in our schedule in Table I, *viz.*, 7 ' points ' for a lb. of syrup and 8 ' points ' for 2 tins of skimmed condensed milk. A further ' point ' would have been required if the lb. of syrup had been obtained in a tin of 1 lb. instead of, as assumed by us, being purchased 2 lb. at a time in a single tin. Most families, however, seem to prefer buying syrup in 2-lb. tins, which also cost a halfpenny less per lb. than syrup in 1-lb. tins. Table II suggests how a family with a low expenditure on food might have disposed of all their ' points '. We there also assume the purchase of the full fat ration. This diet B would have required an outlay of 1s. 2¼d. more than the ' human needs '

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[1] The quantities of food needed to replace the herrings were calculated by means of the Tables of *Nutritive Values of Wartime Foods*, published by the British Medical Research Council in 1945.

[2] A reduction in the total cost of the diet by 2s. 6d. could probably have been achieved in June, when herrings reappeared in the shops and the price of greens, which were plentiful, fell to 3½d. a lb.

TABLE II

Low Cost Diet B *for 5 Persons*

	Quantity	Outlay s.	Outlay d.	' Points '
' Human Needs ' Diet		**48**	**8**	**15**
Excluding :				
Condensed Milk	tin		8	4
Mackerels	2 lb.	1	6	—
Macaroni	4 oz.		2¼	—
Semolina	4 oz.		1¾	—
Bread	15 oz.		2¼	—
		2	8¼	4
Including :				
Veal Loaf	11½ oz.	2	7	12
Dates	8 oz.		6½	2
Rice	10 oz.		5¾	5
Margarine	5 oz.		3¼	—
		3	10½	19
Low Cost Diet B		**49**	**10¼**	**30**

diet. It would yield about the same amount of calories, while the 5 oz. of vitaminized margarine would add to the family's daily intake about 400 International Units of vitamin A. On the other hand, owing to the replacement of 15 oz. of bread by 5 oz. of margarine, diet B would supply per day about 5 gm. of second-class protein less than the ' human needs ' diet, and owing to the exclusion of a tin of condensed milk, it would also provide a somewhat smaller amount of calcium, by nearly 0.2 gm per day. Yet there can be little doubt that for culinary reasons—and these are in practice the only reasons that lie behind most housewives' choice of foods—diet B would be considered by many superior to the ' human needs ' diet.

3. INDIVIDUAL SHARES IN THE FAMILY DIET

A possible allocation of the ' human needs ' diet to the individual members of the family that—assuming standard requirements—would represent for each member a reasonably satisfactory nutritional intake, is given in Table III. A considerable amount of interchange of related foods between the individual shares would, of course, be possible; in particular, semolina could replace macaroni, weight for weight, bread could replace flour in the proportion of 3 to 2, and *vice versa*.

Our outline of individual shares has been drawn up on the assumption that most meals are eaten by the family together, and that only the husband occasionally takes a packed meal. In families that can only afford a ' human needs ' nutrition, it is usual for the largest shares of most of the first-class protein foods, with the main exception of milk, to go to the husband, and the distribution suggested by us allows for this habit. Only of fish have we assumed a slightly larger consumption by the wife than by the husband,

TABLE III

Individual Shares Available in ' Human Needs Diet ' for 5 Persons (per Week)

	Husband	Wife	Child 7–12 years[1]	Child 5 years
(*a*) Rationed Foods :				
1[2] Meat	1 lb. 3 oz.	10 oz.	11 oz.	9 oz.
2 Bacon	6 oz.	1 oz.	1 oz.	1 oz.
3 Margarine	9 oz.	8 oz.	5 oz.	3 oz.
4 Cooking Fat	2 oz.	2 oz.	2½ oz.	1 oz.
5 Sugar	6 oz.	12 oz.	12 oz.	8 oz.
6 Syrup	1 oz.	3 oz.	4 oz.	4 oz.
7 Tea	2½ oz.	3 oz.	1 oz.	½ oz.
8 Cheese	5 oz.	2 oz.	1 oz.	1 oz.
9A Eggs in shell	3 eggs	1½ egg	2 eggs	1½ egg
10 Condensed Milk, skimmed	—	⅝ pt.[4]	⅝ pt.[4]	⅝ pt.[4]
(*b*) Fresh Milk :				
11A Ordinary	2 pt.	2 pt.	3¼ pt.	3½ pt.
11B School	—	—	1⅜ pt.	1⅔ pt.
(*c*) Main Carbohydrate Foods :				
12 Bread[3]	6 lb. 9 oz.	5 lb. 14 oz.	3 lb. 4½ oz.	2 lb.
13 Flour	12 oz.	6 oz.	6 oz.	2 oz.
14 Potatoes	7 lb.	4 lb.	3 lb. 12 oz.	2 lb. 8 oz.
(*d*) Fresh Vegetables *excl. potatoes* :				
15C Greens	2 lb. 3 oz.	2 lb. 3 oz.	2 lb. 2 oz.	1 lb. 14 oz.
15D Onions	1 lb.	5 oz.	4 oz.	3 oz.
(*e*) Other Foods *excl. condiments* :				
16A Peas, dried	4 oz.	1 oz.	1½ oz.	—
16B Haricot Beans	3 oz.	1 oz.	1½ oz.	1 oz.
17 Rolled Oats	8 oz.	8 oz.	9 oz.	6 oz.
18 Pearl Barley	2 oz.	1 oz.	1 oz.	1 oz.
19A Macaroni	4 oz.	1 oz.	1 oz.	1 oz.
19B Semolina	3 oz.	4 oz.	1½ oz.	1 oz.
20 Figs, dried	1 oz.	3 oz.	4 oz.	4 oz.
21 Jam, Plum	1 oz.	1 oz.	1½ oz.	1 oz.
22 Cocoa	—	1 oz.	1 oz.	1 oz.
24B Kippers	11 oz.	10 oz.	6½ oz.	5 oz.
24C Mackerels	12 oz.	1 lb.	7 oz.	6 oz.
25 Sausages	2 oz.	2 oz.	1 oz.	1 oz.
26 Tinned Carrots	1 oz.	2 oz.	3 oz.	3 oz.

[1] Two children in this age group.
[2] The serial numbers correspond to those in Table I.
[3] 14 oz. unallotted. [4] Approximately.

which seemed probable if the wife but not the husband has all her meals at home. If 15 oz. of bread were replaced by 5 oz. of margarine it would be necessary to confine the change to the shares of the husband and wife, since bread but not margarine is a fair source of second-class protein, and a reduction in the supply of protein in the children's shares would tend to unbalance their diets. It would, however, be possible to leave all the shares practically as they stand and substitute the 5 oz. of margarine mainly for the 14 oz. of bread which we left unallocated in working out the individual shares in the diet. If most of this bread were distributed over the individual shares—5 oz. going to the husband and 2 oz. to each of the other members of the family—it would just about bring the calorific yield of these shares up to standard requirements (Table IV), since each ounce of bread supplies about 71 calories. It seemed, however, more realistic to allow for a small elastic margin of calorific supply from the diet, in allocating the individual shares, in order to indicate how exceptional calorific requirements by one or two members of the family might infringe upon the shares of the others. In substituting 5 oz. of margarine for the 14 oz. of bread, approximately 1⅔ oz. would have to be allotted to the husband and ⅔ oz. to each of the four other members of the family, in order to raise the calorific yield of their shares to the standard figures. It should be observed that in that case the husband's share in the family's fat ration would rise to almost 13 oz. and that of the wife to almost 11 oz.—their actual ration allowance being only 9 oz. per head—while the fat consumption of the youngest child would still be less than 5 oz., or just over half of his full fat ration. Altogether, the youngest child's share as shown in Table III includes only three-quarters of his meat and egg rations, half of his rations of bacon and cheese, and four-fifths of his ration of sugar. On the other hand, his total milk consumption would be higher than that of any other members of the family, *viz.*, 6 pints per week.

TABLE IV

Nutritional Requirements and Intake from 'Human Needs' Diet

Nutritional Requirements per Day:	Husband	Wife	Child 7–12 years[2]	Child 5 years	M.A.E.s[1] of Family of 5 Persons
Calories	3000	2500	2100	1500	3.73
Protein, gm.	70	60	65	50	4.43
Calcium, gm.	0.8	0.8	1.4	1.3	7.13
Iron, mgm.	10	10	13	8	5.40
Vitamin A, Intern. Units ...	3000	3000	3000	3000	5.00
Vitamin B_1, mgm.	0.90	0.75	0.95	0.68	4.68
Vitamin C, mgm.	30	30	30	30	5.00

Individuals Intake per Day from 'Human Needs' Diet (Table III):	Husband	Wife	Child 7–12 years[2]	Child 5 years	Average Intake[3] per M.A.E.[1]
Calories	2950	2483	2081	1483	3000
Protein, gm.	101	78	66	51	82
Calcium, gm.	0.9	0.8	1.0	0.9	0.6
Iron, mgm.	20	16	13	9	13
Vitamin A, Intern. Units ...	s[4]	s[4]	s[4]	s[4]	s[4]
Vitamin B_1, mgm.	2.1	1.5	1.3	0.9	1.5
Vitamin C, mgm.	48	43	45	39	44
Animal Protein: gm. ...	36	28	30	29	35
of tot. prot. requirements ...	*51%*	*47%*	*46%*	*58%*	*50%*

[1] Male Adult Equivalent. [2] Two children in this age group.

[3] Including nutrients from 14 oz. of bread not allotted to individual members of the family. [4] Probably satisfactory to good.

The amounts of nutrients derived from the individual shares in Table III are set out in Table IV and compared with the nutritional standard requirements as recommended by the Ministry of Health. It will be seen that the youngest child's share would supply for it on the whole a balanced diet, which would contain slightly more animal protein than the mother's diet, and owing to the child's larger allowance of milk, also more calcium. Even so, his as well as the other two children's intake of calcium would be 0.4 gm. per day less than the intake suggested as desirable in the Ministry of Health figures.

Fresh milk could be bought freely in May, 1949; but an intake of calcium of between 1.3 gm. and 1.4 gm. per day would necessitate a consumption of milk or cheese by the children much larger than is customary in most families even when there are no restrictions imposed on the sale of these foods, and it could be attained in no other way than by means of an ample intake of milk and cheese. In the case of our diet schedule, the share of each of the children would have to include 10½ pints of milk instead of about 6 pints,[1] as shown in Table III. The animal protein obtained from these additional 13½ pints of milk would be approximately as much as that supplied by 2 lb. 7 oz. of kippers, 3 lb. of mackerel, and 3 oz. of sausages.

All the figures of nutritive values employed by us for compiling the nutritional intake from the diet were derived from the data published in 1945 by the Medical Research Council.[2] Unfortunately no data were given in that publication for broccoli and spring greens, which according to some authors have substantially higher vitamin A values than even carrots.[3] We therefore abstain from showing in this paper any figures for the vitamin A content of the 'human needs' diet; but there appears to be good reason for assuming that it would have been satisfactory, for the whole diet as well as for the individual shares. In all our previous schedules we were able to assume the purchase of fresh carrots—which are an excellent source of vitamin A—in quantities which would have guaranteed a generous intake of this vitamin, and for the sake of convenience we therefore usually adopted for spring greens the same values as those employed by us for cabbage in autumn, although the vitamin A content of cabbage is low.[4]

In calculating our data of the content of vitamin C in the 'human needs' diet we have in all instances deducted 50 per cent of the vitamin C values of potatoes and fresh vegetables, to allow for losses in cooking, since exposure to light and heat are liable to destroy substantial proportions of this vitamin in the foods.

4. THE ROLE OF THE ANIMAL PROTEIN FOODS

Generally speaking, the most expensive foods in a 'human needs' diet are the first-class or animal protein foods, and vegetables other than potatoes. Tables V A, B, C, and D compare the cost of these foods with those of the other foods, included in our schedule, in relation to their yields of calories, protein, and calcium. The data in the four Tables bring out clearly the different importance of the several foods in the shares of the different individuals. Thus, in the husband's diet nearly 54 per cent of the calories would be obtained from bread, flour, and fats, and only 6 per cent from milk and cheese, while in the diet of the youngest child only a little over a third of all his calories would derive from the former foods and over 22 per cent from the

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[1] Including condensed milk.

[2] *Nutritive Values of War-Time Foods* (H.M. Stationery Office).

[3] *Cf.*, J. A. Nixon and D. G. C. Nixon, *Textbook of Nutrition* (Oxford, 1938), and H. C. Sherman, *Chemistry of Food and Nutrition* (New York, 1946, 6th edition).

[4] Like all vegetables, cabbage actually contains not vitamin A but only its provitamine (carotene). As is at present customary, we count 3 I.U. of carotene as 1 I.U. of vitamin A.

TABLE Va

Relative and Absolute Outlay on Diet in Table III

	Husband	Wife	Child 7–12 years	Child 5 years
	%	%	%	%
All Meat[1]	21.2	12.0	13.3	13.8
All Fish	9.5	13.0	7.7	7.8
Eggs	5.0	3.0	4.6	4.1
All Milk and Cheese[2]	9.7	12.8	19.3	24.6
	45.4	40.8	44.9	50.3
Bread and Flour	13.2	13.4	9.0	6.1
Rolled Oats	2.3	2.8	3.5	3.0
Potatoes	8.2	5.7	5.9	5.0
Other fresh Vegetables	10.7	9.9	10.9	11.6
Peas and Beans, dried	3.2	1.2	1.7	0.8
Margarine and Cooking Fat	4.7	5.3	4.6	3.1
Sugar and Syrup	1.7	4.5	5.6	5.5
All other Foods[3]	10.6	16.4	13.9	14.6
	54.6	59.2	55.1	49.7
Outlay on diet per day (pence)				
On 1st-class Protein Foods	9¾	7¼	7	6½
On all other Foods	11¾	10¼	8½	6½

[1] Including bacon and sausages. [2] Including condensed milk.

[3] Including outlay on tea and on condiments: husband, 6.0 %; wife, 8.3%; child, 7–12 years, 4.8 %; child, 5 years, 3.6 %.

TABLE Vb

Relative and Absolute Calorific Content of Diet in Table III

	Husband	Wife	Child 7–12 years	Child 5 years
	%	%	%	%
All Meat[1]	10.5	5.4	6.4	7.7
All Fish	3.1	3.9	2.6	2.9
Eggs	1.1	0.7	1.1	1.1
All Milk and Cheese[2]	6.1	7.9	15.4	22.5
	20.8	17.9	25.5	34.2
Bread and Flour	41.9	41.8	29.7	23.8
Rolled Oats	4.3	5.1	6.9	6.4
Potatoes	8.7	5.9	6.6	6.2
Other fresh Vegetables	1.3	1.2	1.3	1.6
Peas and Beans, dried	2.7	0.9	1.6	0.7
Margarine and Cooking Fat	12.0	12.9	11.8	8.7
Sugar and Syrup	3.5	8.8	11.1	11.5
All Other Foods	4.8	5.5	5.5	6.9
	79.2	82.1	74.5	65.8
Caloris obtained from diet per day				
From 1st-class Protein Foods	615	443	530	507
From all other Foods	2335	2040	1551	976

[1] Including bacon and sausages. [2] Including condensed milk.

TABLE Vc

Relative and Absolute Content of Proteins in Diet in Table III

	Husband	Wife	Child 7–12 years	Child 5 years
	%	%	%	%
All Meat[1]	14.1	9.2	11.1	12.2
All Fish	8.9	12.6	7.9	8.4
Eggs	2.6	1.7	2.7	2.6
All Milk and Cheese[2]	10.2	12.3	24.1	33.1
	35.8	35.8	45.8	56.3
Bread and Flour	41.4	45.0	31.4	23.6
Rolled Oats	3.8	5.0	6.6	5.8
Potatoes	6.4	4.7	5.2	4.5
Other fresh Vegetables	2.2	2.2	2.4	2.8
Peas and Beans, dried	6.6	2.4	4.2	1.7
All other Foods	3.8	4.9	4.4	5.3
	64.2	64.2	54.2	43.7
Proteins obtained from diet per day (gm.)				
From 1st-class Protein Foods	36	28	30	29
From all otherFoods	65	50	36	22

[1] Including bacon and sausages. [2] Including condensed milk.

TABLE Vd

Relative and Absolute Content of Calcium in Diet in Table III

	Husband	Wife	Child 7–12	Child 5 years
	%	%	%	%
All Meat[1]	1.5	0.9	0.7	0.7
All Fish	4.3	4.7	2.4	2.0
Eggs	1.4	0.8	0.9	0.7
All Milk and Cheese[2]	40.4	43.3	62.5	70.4
	47.6	49.7	66.5	73.8
Bread and Flour	31.3	29.5	14.6	9.1
Rolled Oats	2.1	2.3	2.2	1.6
Potatoes	3.6	2.3	1.8	1.3
Other fresh Vegetables	9.4	8.9	7.1	6.7
Peas and Beans, dried	3.5	1.2	1.5	0.8
All other Foods	2.5	6.1	6.3	6.7
	52.4	50.3	33.5	26.2
Calcium obtained from diet per day (mgm.)				
From 1st-class Protein Foods	423	395	631	648
From all other Foods	465	399	319	230

[1] Including bacon and sausages. [2] Including condensed milk.

latter. About a fifth of the husband's total calorific intake would come from first-class protein foods, and over a third of the youngest child's intake. One-third of this child's intake of protein would be supplied by milk and cheese, and over 70 per cent of his total intake of calcium would come from these foods; the corresponding figures for the husband are 10 per cent and 40 per cent. Bread and flour, which in the youngest child's share are the source of about 9 per cent of the total calcium content of his diet, and which for the two older children would still supply less than 15 per cent of their total calcium intake, represent the sources of almost one-third of the total calcium in the shares of the wife as well as of the husband.

The figures of outlay on first-class protein foods in the individual shares differ from one another relatively less than the corresponding figures of nutrients. It will be seen that, comparing the relative figures of cost with the corresponding ones of nutritional values, the shares of the children were considerably less expensive than those of the husband and wife. The main reason for this is that the children's shares of first-class protein foods include 1⅔ pints of milk obtained free at school. This free milk would have provided in the youngest child's share 5½ per cent of his total calorific intake, 8½ per cent of his total intake of protein, and 18½ per cent of his total intake of calcium. The corresponding figures for the two older children are: 3¾ per cent, 6 per cent, and 16¼ per cent.

5. The Cost and the Nutritional Value of Rationed and of Unrationed Foods

The relative intake of the main nutrients from the several food groups of the 'human needs' diet as shown in Table I, and the relative cost of these groups, are compared in Table VI. The cost of rationed foods—group (*a*)—amounted to 38 per cent of the total cost of the husband's diet, to 34 per cent of the total cost of the shares of the wife and the two older children, and to 32 per cent of the youngest child's share. Since the foods in this group are mostly relatively expensive ones, their total cost tended to be relatively higher than their nutritional yield, except as regards the calorific intake obtainable from the shares of the wife and the children, since these include relatively large quantities of sugar, which is a comparatively cheap calorific food. The least expensive of the main calorific foods are, however, the foods in group (*c*), in particular bread and flour. For both husband and wife the foods in this group would have yielded about half of their total calorific intake, and, further, about half of their total intake of protein and iron, at an outlay amounting to only about a fifth of the total cost of their shares in the 'human needs' diet.

The main sources of vitamin C are fresh vegetables—group (*d*)—and also, in group (*c*), potatoes. The youngest child, however, would have derived more vitamin C from fresh milk than from potatoes, which latter would have supplied only 7 per cent of his total intake of this vitamin, as compared with 11 per cent obtained from milk, mainly from fresh milk, since condensed milk is a poor source of vitamin C.

It did not appear necessary to set out in detail figures of the intake of vitamin B_1 from the human needs diet, since almost any diet contains this vitamin in sufficient quantities, the cheapest sources being bread, flour, rolled oats, and potatoes. As pointed out before, we do not consider it advis-

TABLE VI

Relative Expenditure on and Intake of Nutrients from Diet in Table III

	Group in Diet Schedule	Husband	Wife	Child 7–12 years	Child 5 years	Total diet for 5 Persons
		%	%	%	%	%
Outlay	*(a)*	38	34	34	32	35
	(b)	7	8	15	19	12
	(c)	21	19	15	11	17
	(d)	11	10	11	12	11
	(e)[1]	23	29	25	26	25
	Total	100	100	100	100	100
Calories	*(a)*	29	31	34	34	32
	(b)	3	4	12	17	8
	(c)	51	48	36	30	43
	(d)	1	1	1	1	1
	(e)	16	16	17	18	16
	Total	100	100	100	100	100
Protein	*(a)*	21	15	18	21	19
	(b)	5	7	19	26	13
	(c)	48	50	37	28	42
	(d)	2	2	2	3	2
	(e)	24	26	24	22	24
	Total	100	100	100	100	100
Calcium	*(a)*	21	21	14	15	17
	(b)	22	24	50	57	41
	(c)	35	32	17	10	22
	(d)	9	9	7	7	8
	(e)	13	14	12	11	12
	Total	100	100	100	100	100
Iron	*(a)*	18	13	17	20	17
	(b)	1	1	3	5	2
	(c)	53	53	40	33	46
	(d)	6	7	8	9	7
	(e)	22	26	32	33	28
	Total	100	100	100	100	100
Vitamin C	*(a)*	—	2	2	2	1
	(b)	3	4	9	11	7
	(c)	17	10	10	7	11
	(d)	80	83	78	79	80
	(e)	—	1	1	1	1
	Total	100	100	100	100	100

[1] Including outlay on condiments as shown in Table VII.

able this time to give any figures of the intake of vitamin A from the ‘ human needs ’ diet, but it seems probable that the supply of this vitamin would have been satisfactory. The main sources of it in the diet are cabbage, tinned carrots, vitaminized margarine, fresh milk, cheese, and eggs.

We finally survey in Table VII the actual cost of the ‘ human needs ’ diet for each member of the family, as well as the cost of the slightly more expen-

Table VII

Weekly Cost of Individual Shares in ‘Human Needs’ Diet for 5 Persons

	Husband		Wife		Child 7–12 years[1]		Child 5 years	
Foods in Table III:	s.	d.	s.	d.	s.	d.	s.	d.
(*a*) Rationed Foods	4	9½	3	5¾	3	1	2	4¾
(*b*) Fresh Milk		10		10	1	4¼	1	5½
(*c*) Main Carbohydrate Foods ...	2	8	1	11½	1	4½		10
(*d*) Fresh Vegetables *excl. potatoes*	1	4	1	0¼		11¾		10½
(*e*) Other Foods *excl. condiments*	2	7½	2	9¼	2	1¼	1	9¾
Total	12	3	10	0¾	8	10¾	7	4½
Condiments		2½		2½		2½		2
Total ‘ Human Needs ’ Diet[2] ...	12	5½	10	3¼	9	1¼	7	6½
Additional Cost of Diet B[3] ...		4¼		3		2		2
Total Cost of Diet B[3]	12	9¾	10	6¼	9	3¼	7	8½

[1] Two children in this age group.

[2] Excluding expenditure of 2¼d. on 14 oz. of bread.

[3] This apportionment between the individuals of the additional cost has been assumed.

sive diet B. The apportionment of the additional outlay on diet B between the individual shares is only approximate, since, of course, the adjustments in the distribution of foods could be brought about in various ways. As regards the ‘ human needs ’ diet, the cost of the youngest child’s share in the rationed foods would have amounted to exactly half of the cost of the father’s share, the father drawing heavily on the youngest child’s rations. Partly because of this, it would be possible for a family of the structure postulated by us to achieve a reasonably balanced nutrition at a total weekly cost of 48s. 8d.

6. Conclusion

In November 1948, a ‘ human needs ’ diet supplying a satisfactory nutritional intake for a family of 5 persons could be bought in the cheaper shops in Oxford and London[1] at 42s. 6d. per week; in May 1949, a similar diet required an outlay of 48s. 8d. The ‘ human needs ’ diet compiled by Mr. S. Rowntree for a family of the same size, cost 20s. 6d. in the autumn of 1936, or if bread is substituted for flour and 14 pints of fresh full cream milk for 14 pints of skimmed condensed milk, about 23s. 9d. Compared with this latter figure, the cost of a ‘ human needs ’ diet rose from 1936 to November 1948, from 100 to 179, and from 1936 to May 1949, from 100 to 205. The reduction of the food subsidies had only a very slight effect on the total cost of the diet in May 1949, as compared with that cost in November 1948; without it, the index figure would have been 202 instead of 205. About 11 points in the rise of the index figure for May reflect the temporary scarcity of herrings that had to be made good by the inclusion of on the average more expensive foods, and the seasonal increase in the cost of vegetables. Greens, however, were plentiful in the spring of 1949, and early in June their price fell to 3½d. a lb.

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[1] In November 1948, no shops were visited in Reading.

At the same time herrings began to reappear in the shops. In June 1949, the index of cost would therefore have been approximately 194, as against 205 in May and 100 in the summer of 1936. Increases in prices and, to a larger extent, adjustments in the diet schedule, accounted for about 12 points in the rise of our index since November 1948. We do not, however, think that the adjustments made by us—including the replacement of 4 dried eggs by 7 eggs in shell—can be said to raise the schedule above the ' human needs ' level, at least not if this schedule is meant to outline a diet that is not purely hypothetical but one that might actually have been bought by an efficient housewife. No one who in May 1949 tried to purchase the diet shown in Table I can be in any doubt that it required very considerable skill and ingenuity to procure all the right foods at the right times and to transform them into palatable meals.

T. SCHULZ.

CHANGES IN REAL NATIONAL INCOME

The latest National Income White Paper (*Cmd.* 7649), which covers the years 1938 and 1946–8, provides a basis for comparing the present economic state of the nation with the pre-war pattern, before it was distorted by large-scale armament production. By showing a series of three post-war years, it also enables one to trace the progress of post-war recovery, and the return of the national product to peace-time uses.

This paper continues the series of commentaries on the National Income which have appeared annually in the BULLETIN, and the methods of analysis used are mainly the same as in the previous years.[1]

1. THE SIZE AND DESTINATION OF THE NATIONAL PRODUCT

For the purposes of comparing the National Products of 1938, 1946 and 1947, with 1948, the outlay on consumption, investment, defence and administration, and exports for each of these three years was deflated separately, because the price indices available refer mainly to products grouped according to use. Imports at 1948 prices were deducted (after being roughly allocated to the different types of spending) in order to reach the value of home-produced goods and services. The procedure adopted is described in detail in the Appendix, and the validity of the following analysis of the current economic situation depends on the assumptions listed there.

The size and destination of the National Product[2] of the United Kingdom at fixed 1948 national cost prices, *i.e.* what production would have cost if the factors of production had throughout cost what they did on average in 1948, was estimated as shown in Table I.[3]

TABLE I

Gross National Product by destination at 1948 *national cost prices*

	(£'000 million) 1938	1946	1947	1948
Personal consumption in the U.K.	4.55	5.21	5.24	5.25
Gross capital investment	1.68	1.43	2.03	2.14
Government consumption	0.95	2.04	1.69	1.55
Exports (*a*) Goods	1.04	0.87	0.98	1.17
(*b*) Services	0.62	0.26	0.24	0.39
Gross National Product	8.84	9.81	10.18	10.50

* For division of total Government spending between Military and Administration, see Appendix.

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[1] *E.g.*, BULLETIN, Vol. 10, pp. 309 *et seq.* Minor details of method and definition are not repeated in this paper. For the convenience of those with the booklet, 'Changes in the Cost of Living and the Distribution of Income since 1938,' the reference there is pp. 55 *et seq.*

[2] 'National' here refers to what is made by United Kingdom citizens, not to what is made in the United Kingdom, since the income from British property overseas, but not the income on foreign property here, is included.

[3] These estimates are found by deducting actual imports from outlay. They refer (ignoring the time-lag between the arrival and use of imports) therefore to the current destination of previous production, not the intended destination of current output.

On the basis of Table I, output would appear to have been 11 per cent higher in 1946 than in 1938, with successive rises of 4 per cent from 1946 to 1947 and 3 per cent from 1947 to 1948. To this one must add two customary cautions. First the effect of a movement of labour from an industry with a low value of output per head to one with a higher *per capita* output involves an apparent increase in output, and secondly there was a decline in quality of output from 1938 to 1946, which means that the rise in national product between these years is exaggerated, but a slight improvement since 1946, implying a rather higher rate of recovery than shown above.

As will be seen by comparing the table of consumption at fixed prices, given in the Appendix, with the above table, though consumption was much the same as pre-war in real terms, the production of consumers' goods and services for the home market was substantially higher than pre-war. This shows the extent to which the United Kingdom has succeeded in ' doing without ' imported goods, the increase in home production offsetting the fall in real imports. It is interesting to note that a much higher proportion of U.K. output is destined for the home market than before the war, despite the export drive, when we take increased Government spending and investment into account. This might indicate, so far as demand for our output is concerned, a slight reduction in vulnerability to an external depression, as well as possibly a better balance of occupations, though these are doubtless offset by some loss of real income.

The quantity indices of merchandise exports implied in Table I conflict with the Board of Trade estimates in that they show that it was not until 1948 that the pre-war level of exports was passed, for reasons discussed fully in the Appendix. Briefly the explanation depends on the use, in this paper, of a modified Paasche-type quantity index, implying current-year price-weighting, instead of the official Laspeyre-type quantity index, implying 1938 price-weighting.[1] Because the official quantity index weights the exports in which our recovery has been quickest (such as machinery) by their relatively high pre-war prices, it shows the recovery of exports somewhat more favourably than a technically equally correct comparison would indicate, using current-price weighting. Owing to the manner in which the import content of merchandise exports is estimated in this paper no allowance is made for a probable decrease in the import content since 1938. For this reason, our figure for home-produced export value in subsequent years may be too low.

An estimate was also made of the output per head, at fixed prices, of the working population, including H.M. Forces. The old series for employed persons was revised upwards in the same proportion as the new series (based on the new National Insurance data) exceeded the old in mid-1948.[2] The

[1] For general discussion of export targets the official Paasche-type price index has advantages, since it provides a Laspeyre-type volume index, which permits a constant volume target.

[2] A special adjustment was necessary for domestic servants. Previously uninsured domestic servants were deducted from the total employed figure (new series) at July 1948, and the remainder was used as the factor for adjusting upward the old series total employment figures. The number of domestic servants was assumed to vary proportionately

qualifications above about labour force changes and quality changes must be borne in mind when reading the results :[3]—

	1938	1946	1947	1948
Gross National Product (£'000 million)	8.84	9.81	10.18	10.50
Employed working population (million) at mid-year	21.20	22.19	22.80	22.77
Output per head	£417	£442	£446	£461

2. The Use of the National Product

Table II shows the use of resources in real terms, and from it can be obtained, the following comparisons :—

Table II. *Gross National Outlay at* 1948 *national cost price*

	1938	1946	1947	1948
		(£'000 million)		
Private consumption	6.39	6.22	6.48	6.50
Net capital formation	0.76	0.71	1.39	1.51
Government spending (*a*) Military	0.50	1.62	0.98	0.74
(*b*) Other	0.73	1.08	1.17	1.12
Net National Outlay	8.38	9.63	10.02	9.87
Maintenance of capital*	1.07	0.84	0.81	0.81
Gross National Outlay	9.45	10.47	10.83	10.68

* The reason for the apparent fall in real depreciation is the inadequacy of post-war depreciation allowances, on Government capital in particular.

	1938	1946	1947	1948
Total population (thousands). Mid-year	47,494	49,185	49,539	50,033
Consumption of food at 1948 national cost prices* (£M)	2,484	2,486	2,563	2,578
Non-food consumption at 1948 national cost prices ...	3,906	3,737	3,920	3,920
Consumption of all goods and services at 1948 national cost prices	6,390	6,222	6,483	6,498
Consumption of food *per capita* at 1948 national cost prices†	£52.3	£50.5	£51.7	£51.5
Non-food consumption *per capita* at 1948 national cost prices†	£82.2	£76.0	£79.2	£78.4
Consumption of all goods and services *per capita* at 1948 national cost prices†	£134.5	£126.5	£130.9	£129.9

* Nine-tenths of ' allowances in kind for H.M. Forces ' at 1948 national cost prices was added to the total for consumption of food in each year.

† The valuation of total consumption goods and services in terms of 1948 national cost prices tends *e.g.* to over-wieght food, and under-weight other consumption articles, notably drink and tobacco, as compared with the alternative method of revaluing all commodities at 1948 market prices. Theoretically it is preferable to make welfare comparisons in market prices. But the valuation of food at national cost prices may well be at present a better measure of its value to the consumer than would be given by a valuation at a fixed market price.

These figures provide an indication of the extent to which the individual on average has failed to return to the 1938 standard. The average movement is, of course, the resultant of all the individual movements, many slightly upward and some slightly downward (and allowance should be made for the higher proportion of young children). It is interesting to note that the fall in

with the total of domestic service wages in 1946 and 1947. The number of previously insured domestic servants (mainly working in hotels, etc.) at July 1948 was assumed to have remained constant since 1946. The final step was to add back the estimated number of (previously) uninsured domestic servants. Following an estimate made by T. Barna, L. and C.E.S. Bulletin II, 1947, this number was taken as 1.3 million.

[3] Much of the apparent rise in ' productivity ' since 1946 may be accounted for by a shift from the Forces (at relatively low wages) to civilian employment.

non-food is relatively greater than the fall in food consumption (because of the fall in real consumption of domestic durables, clothing and motoring). The preceding section shows that the decline in consumption occurs despite a rise in home production for consumption, and is in fact due to the fall in real imports.

The increase in ' productivity ' has not in fact managed to cover higher exports, higher Government spending and higher investment by a sufficient margin to maintain *per capita* consumption. ' Net ' capital formation as defined in the National Income White Papers, after falling in 1946 to 93 per cent of the pre-war level, has since risen to 198 per cent. However, a glance at the figures for the ' maintenance of capital ', again using the National Income White Paper definition, shows that the increase in pre-war real net investment is not quite so great. This is mainly because of the arbitrary nature of ' Government depreciation ' (see note on this item in the Appendix). A more significant picture may be gained by taking the two series combined : *i.e.* gross capital formation. This shows a fall in 1946, as compared with pre-war, to a level of 84 per cent, with a subsequent rise in 1947 to 111 per cent and in 1948 to 127 per cent. Viewed against the rise in the working population, the *per capita* investment recovery would not be quite as great, but still testifies to the success of the country in tackling the immediate post-war problems of making good war losses and war-time depletion and obsolescence, and starting the long job of raising industrial efficiency.

All these estimates are still in some degree subject to the qualification about quality changes downward from 1938 to 1946, and upward thenceforward. (In the case of consumption, this factor and rationing must both be taken into account when consideraing ' consumer satisfaction.')

Real Government spending on administration would appear to have remained fairly constant at about double the pre-war level, while military spending, after being over treble in 1946, has been reduced to a figure of about 50 per cent above 1938. Of the £880 millions at 1948 prices made available by demobilisation since 1946, only £280 millions have gone towards increasing consumption, while the balance has gone entirely into increasing the country's capital resources overseas or at home. It was in fact primarily the check to real consumption which made possible such a large reduction last year in Britain's external deficit as is shown in Table III.

Table III shows that the U.K. deficit on Balance of Payments current account was in 1948 only a quarter of what it would have been in 1938, *had* 1948 *prices operated then.*[1] (The increase of £50 million at current prices

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[1] The ' deficit ' on Balance of Payments current account is subject to a variety of statistical interpretations. The figures in the latest National Income White Paper (Cmd. 7649), are taken directly from the Balance of Payments White Paper (Cmd. 7648), and, following the definitions used there, represent actual payments. Thus the £45 million received in the second half of 1948 under the Indian Settlement are included, while the £125 million, representing the net increase in short-term credits granted by the United Kingdom, plus exports of capital equipment to British oil-companies abroad, are excluded. Since this latter figure represents actual exports, there would be good reason to include it in the Balance of Payment, in which case there would appear to have been an overall surplus of £5 million in 1948. If, on the other hand, the Indian Settlement £45 million are excluded, as a capital item, there would be a deficit of £40 million, as against the Balance of Payments White Paper deficit of £120 million.

TABLE III *National product, national outlay and the import surplus at 1948 prices*

	1938	1946	1947	1948
	(£'000 milloin)			
Gross national outlay	9.45	10.47	10.80	10.68
Less gross national product	—8.84	-9.81	—10.18	—10.50
Less net indirect tax on exports	—0.06	-0.04	—0.05	—0.06
Net loss of overseas assets	0.55	0.62	0.60*	0.12
Imports, including invisibles	2.83	2.18	2.29	2.22
Exports, including invisibles and net indirect tax ...	2.28	1.56	1.69	2.10
Net loss of overseas assets	0.55	0.62	0.60*	0.12

* The fact that at 1948 prices the net loss of foreign assets appears smaller than it was at current prices depends on the f.o.b. price indices with which imports and exports were deflated. These price indices, as is explained in the Appendix, contain a wide margin of error.

was entirely due to the deterioration in the terms of trade). The deterioration in the balance of payments between 1938 and 1947 was analysed in real terms[1] in the article on the 1947 National Income. This series has been continued in the table below, where the comparison is made between 1938 and 1948.

The causes of the External Deficit in 1948 *as compared with* 1938

	(£ millions)	
Deficit in 1938		70
Effect of change in the terms of trade (including invisibles)		+480
Effect of changes in the national outlay compared with 1938 at 1948 prices :		
More private consumption	+110	
More gross investment	+380	
More military spending	+240	
More expenditure on administration	+500	
	+1,230	
Effect of increased national production compared with 1938 at 1948 prices :		
More production for the home market...	—1,760	
More exports of goods	—130	
Less exports of services	+230	
	—1,660	
		—430
Deficit in 1948		120

This shows that ' real ' changes have nearly offset the effect of the adverse change in the terms of trade. It would appear, from the tables given above, that the normal growth in the National Product during 1949 alone would be sufficient to achieve for the U.K. an *overall* balance of payments on current account, providing that there is a less than proportionate increase in the national outlay.

But it must be remembered that the rise in the National Income of rather more than 3 per cent per annum since 1946 has been assisted both by demobilisation (especially in 1947) and by the easing of key shortages (especially in 1948), though hampered in 1947 by the fuel crisis. The assistance provided by demobilisation in expanding our industrial labour force has however finished and we must look to further redistribution of labour, and the effect of increased labour efficiency from improved capital equipment, to maintain this rate of growth. It must be stressed that this growth is contingent on the maintenance of a high level of employment, and thus on a continued high level of imports. The Chancellor of the Exchequer has warned the nation[1] that the combined cost of the National Health Scheme, National Insurance, and the education services will be in the region of £763 millions, and the Economic Survey estimate that Government expenditure will probably be £126 millions higher in 1949[2] may be on the low side. It is true that a slight fall in investment is forecast in the Economic Survey, but the amount involved is small compared to the national income.[3]

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[1] BULLETIN, Vol. 10, p. 312. (Booklet, p. 58).

This would indicate that unless (i) there is a radical change in the Government's expenditure (*i.e.* a sharp reduction in the Social Services or military spending), or (ii) more vigorous controls are applied to new capital investment, or (iii) the terms of trade move sharply in our favour, then the increased resources needed for achieving the overall balance of payments must still be provided by checking the rise in national consumption.

It may in any event happen that cuts in dollar imports will lead to reduced employment and output[4]. This would, of course greatly increase the difficulty of allocating our resources. The most tempting but the most disastrous solution (as in the 1947 crisis) would be to cut capital investment. But the problem of spreading the cuts in real expenditure over the remaining forms of outlay (Government expenditure and private consumption) would involve great political strains for the country.

For example devaluation will at once raise the acute question of how much wage-earners should be sheltered, whether for welfare or other reasons, by increasing subsidies and family allowances (any such aid to real wages tending of course to maintain imports). There will also be the further question of where to find the resources for the consequent necessary greater increase in the volume of exports.[5] If there is alternatively or additionally an import cut, there may be less room for choice as to where it should fall, but the consequent reduction in real outlay will not be the easier to bear for that. The problem of adjusting the national economy to the new, post-war, equilibrium level of national output, at best slightly rising, must pose an unpleasant series of choices.

DUDLEY SEERS
P. F. D. WALLIS.

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[1] The Budget Speech (1949).

[2] Cf. the Economic Survey for 1949, *Cmd.* 7647, esp. Table 20. It must be borne in mind, when considering the effect of increased expenditure by the Government on the National Health Scheme, that a part of this represents a transfer from private to Government account, and therefore no increase in national outlay. The Survey estimate is at end 1948 prices.

[3] Despite previous errors of surveys in forecasting a fall in investment, there really may be a fall this year, because of the reduction in stockbuilding.

[4] Even those who argue that some general unemployment will lead to higher output could hardly hold that areas of acute unemployment in an otherwise fully employed economy will help output.

[5] The extent to which the terms of trade turn against us, and the need therefore for increased volume, depend on the amount of simultaneous devaluation of sterling area and continental countries.

APPENDIX

Correction for Price Changes

(*i*) *Consumption*

The method used to estimate consumption at fixed national cost prices, is the same as in previous years, being derived from Professor Champernowne's paper on the 1945 National Income.[1] Briefly, it involves the reconstruction of the table of the National Cost of Consumers' Goods and Services (Table 22 in the current National Income White Paper), at fixed 1948 national cost prices, in such a way that each of the twenty items yields a quantity relative equivalent to that which is implied by the corresponding item in Table 21 : (Consumption at fixed 1938 market prices).[2]

Table IV

Consumers' Goods and Services revalued at 1948 *National Cost*

		1938	1946	1947	1948
1.	Food...	2,458	2,365	2,503	2,539
2.	Alcoholic beverages	368	355	350	341
3.	Tobacco	134	179	157	151
4.	Rent...	387	404	412	421
5.	Fuel and light	283	313	331	347
6.	Durable household goods	440	278	338	346
7.	Other household goods	81	64	69	72
8.	Clothing	857	634	717	782
9.	Books, newspapers and magazines	77	108	120	127
10.	Private motoring	178	90	92	63
11.	Travel	205	292	292	305
12.	Communication services	35	51	51	52
13.	Entertainments	72	117	111	118
14.	Other services	685	638	677	661
15.	Other goods...	308	266	294	294
16.	Income in kind of H.M.F.	29	134	67	43
17.	*Less* foreign tourists' expenditure in the U.K.	—79	—15	—22	—35
	Less unallocated net indirect taxes	—217	—177	—202	—226
18.	Personal expenditure in the U.K. after adjustment for indirect tax and subsidy	6,301	6,096	6,357	6,401
19.	Personal expenditure abroad	89	126	126	97
20.	Total consumption	6,390	6,222	6,483	6,498

From Table IV, and Table 22 of *Cmd.* 7649, we can calculate the following current-weighted index of national cost prices of consumers' goods and services :—

1938	1946	1947	1948
100	154	163	172

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[1] Bulletin, Vol. 8, No. 5.

[2] The validity of this assumption also depends on the heterogeneity of commodity groups. A quantity relative for a group calculated from the White Paper implicitly weights quantities of separate commodities within the group according to their 1938 market prices, whereas we would strictly want here weighting according to 1948 national cost prices. The error depends in fact on the correlation between quantity relatives for particular commodities and the differences in the relative prices of commodities in 1938 and 1948. Where, for example, increased relative prices are associated with high quantity increases and *vice versa*, as has probably happened inside the food group, the table will understate the value of consumers' goods at fixed national cost. Unallocated taxes (at 1948 level) were assumed a function of volume.

(*ii*) *Gross Investment*

An investment cost index was constructed on the same lines as in the paper on the 1947 National Income.[1] For plant and machinery the export average value indices (*Board of Trade Journal*) for machinery and electrical goods were used, and roughly weighted according to their share in post-war exports.[2] For vehicles, aircraft, and ships, the ' vehicle ' export average value index was taken, and for stockbuilding, the ' Industrial materials and manufactures ' wholesale price index. In the case of building, an index was constructed from information given in Table A of the Girdwood Committee report (*The Cost of House-Building*) and the *Economist*, July 10th, 1948, p. 67. The market price index for ' miscellaneous services ', implied in the National Income White Paper, was chosen as the most appropriate index for property transfer costs.

The separate index numbers for the different classes of investment were then weighted (i) for 1938 by the distribution of gross capital formation as shown by Kaldor,[3] (ii) for 1947 from information given in Table 2 of *Cmd.* 7647. (The figures for stockbuilding were taken from Table 2 of *Cmd.* 7649, while ' Investment Costs ' was roughly estimated. The 1947 weights for the first three items in the index were held to apply to 1946.) The final index numbers were calculated as indicated in the table below :—

Investment cost index, 1938 *and* 1946–48[4]

	Weight for 1938	1948 (1938 = 100)	*Weight for 1946*	1948 (1946 = 100)	*Weight for 1947*	1948 (1947 = 100)
Building (incl. Public Utilities) ...	490	259	770	121	770	107
Plant and machinery	120	232	420	134	420	114
Vehicles, ships and aircraft ...	65	206	275	113	275	101
Stockbuilding	25	234	—80	131	376	117
Investment costs (misc.)	60	153	80	108	100	103
Index		241		122		109

These are market price indices (or their nearest equivalent), and they are used to deflate gross investment at market prices as estimated in the National Income White Paper. In addition gross investment at fixed market prices was assumed to give the same quantity relatives as gross investment at fixed national cost price.[5] On these assumptions we have the following estimates :

TABLE V. *Gross Domestic Capital Formation.* (*£ million*).

	1938	1946	1947	1948
Gross investment at current market prices (Table 2, *Cmd.* 7649)	770	1,285	2,040	2,352
Gross investment at 1948 market prices	1,856	1,568	2,224	2,352
Gross investment at 1948 national cost prices... ...	1,832	1,547	2,195	2,321

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[1] BULLETIN, Vol. 10, No. 10.

[2] Owing to the higher profit margins and higher quality standards of export goods, as opposed to home-market goods, this use of the Board of Trade export average value indices will impart an upward bias to the investment cost index.

[3] Appendix C to Lord Beveridge's *Full Employment in a Free Society* (p. 360) .

[4] A slightly lower index for fixed capital is implied by the United Nations *Economic Survey of Europe in* 1948 (Table 33), but no supporting details are given.

[5] This is equivalent to assuming that if 10 per cent less volume of investment were made in any year than in 1948, the 1948 net indirect taxes attributable to this output would also be 10 per cent less.

(*iii*) *Government Current Expenditure*

The following is the division of Government expenditure implied by the latest National Income White Paper :—

(£ million at national cost)	1938	1946	1947	1948
Purchases of goods and services	301	1,226	963	833
Making good depreciation*	90	100	105	110
Wages and salaries	328	1,094	956	916
Total	719	2,420	2,024	1,859

* It was assumed throughout that no net indirect tax or subsidy fell on this item.

To revalue these at 1948 prices, each type of expenditure was separately deflated. Purchases were assumed to be subject to the consumers' good national cost price index given at the end of section (i) of the Appendix. Owing to complete lack of information as to methods for constructing a suitable index for Government depreciation, the investment cost index explained in section (ii) was used. For wages and salaries, it was assumed that annual productivity per Government employee remained constant.

For pay and allowances in kind to H.M. Forces at fixed 1948 national cost, we have :—

	1938	1946	1947	1948
Annual average number in H.M. Forces ('000s) ...	385	2,032	1,292	867
National cost at 1948 prices (£M)	109	577	367	246

For lack of information about the relative number of wage and salary earners among administrative employees, and wage and salary indices, a constant wage and salary stratification was assumed (*a*) for Central Government, and (*b*) for Local Authority employees. In the case of the Central Government, Post Office, and National Insurance Administration personnel were excluded; the latter being included among Local Authority employees, together with full-time teachers paid by the Local Authorities. The figures for non-Forces wages and salaries paid by the Central Covernment, implied in Table 14 of *Cmd.* 7371, were assumed to be correct. An estimate was made for the corresponding figure in 1948. The numbers receiving wages and salaries from the Government each year were assumed to vary in the same way as the numbers shown in the employment of central and local Government.

Hence we have :—

Central Government	1938	1946	1947	1948
Number employed ('000s)	144	444	435	425
Total wages and salaries (£M)	60	257	257	260
Do. at fixed 1948 prices	88	272	266	260
Local Government				
Number employed ('000s)	1,054	1,296	1,378	1,468
Total wages and salaries (£M)	190	313	353	410
Do. at fixed 1948 prices	294	362	385	410
Total Government wages and salaries (non-Forces) at 1948 prices	382	634	651	670

By these methods, Government current expenditure on goods and services, at fixed 1948 national cost prices, was estimated as follows :—

	(£ million)			
	1938	1946	1947	1948
Purchase of goods and services...	515	1,370	1,017	833
Making good depreciation*	217	122	114	110
Pay and allowances of H.M. Forces	109	577	367	246
Wages and salaries (non-Forces)	382	634	651	670
Total current expenditure	1,223	2,703	2,149	1,859

*Government ' depreciation ' is defined (see note on p. 52, *Cmd.* 7649) as ' Provision for maintenance of buildings, highways and bridges, plus annuities under the Housing (Temporary Accommodation) Act, 1944 '. Depreciation in real terms has probably if anything increased. The indices which we have used to deflate this item are not likely to involve such a wide margin of error as to make the official estimates imply anything other than a sharp fall in real depreciation, which indicates the unsatisfactory nature of the official estimates.

The method used to divide Government current expenditure follows the lines indicated in the previous article on the 1947 National Income.[1] Broadly, it involves the following three points : (i) the division of current expenditure between Military and Other in the 1945 National Income White Paper, *Cmd.* 6784, for the year 1938; (ii) the inclusion of wages and salaries of the ' Defence ' section of the Supply Departments, with H.M. Forces' pay and allowances; and (iii) estimates of total military expenditure derived by interpolation from the Financial Statements, for the years 1946–8.

This alternative classification of Government current expenditure, at 1948 national cost prices, is given in the table below.

	(£ million)			
	1938	1946	1947	1948
Wages and Salaries of H.M. Forces and Supply Departments (military)	123	631	407	280
Expenditure on goods and services for the Armed Forces	377	988	569	462
Total military expenditure	500	1,619	976	742
Non-Forces wages and salaries	368	580	611	636
Expenditure on non-military goods	138	382	448	371
Total non-military expenditure	506	962	1,059	1,007
Making good depreciation	217	122	114	110
Total Government current expenditure	1,223	2,703	2,149	1,859

(*iv*) *Exports and Imports*

(*a*) *Exports*

The index needed for deflating merchandise export values is one with given year weights, showing the average price movement from the given year to 1948. 1938 exports, for example, should be deflated by an index of the type $\frac{\Sigma p_{48}q_{38}}{\Sigma p_{38}q_{38}}$, using the customary notation. The *Board of Trade Journal* provides a series of estimates of values of home-produced exports at current prices, ($p_{38}\,q_{38}$ and $p_{48}\,q_{48}$), and also an average value relative, which may be taken as: $\frac{p_{48}}{p_{38}}$. This average value relative is strictly an index calculated with 1948 weights for each section of the commodity group concerned, but to use this as a 1938-weighted relative for each group will not produce great error. An index number of the type required may then be estimated as follows:—

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[1] Bulletin, Vol. 10, pp. 326 and 327.

$$\frac{\Sigma p_{38}q_{38}\frac{p_{48}}{q_{38}}}{\Sigma p_{38}q_{38}}$$

the numerator providing the figure for home-produced exports in each year at fixed 1948 prices. To obtain the total index for deflating merchandise exports, allowance had to be made for re-exports. Since this item is, in each year concerned, a very small proportion of the total, the index for deflating re-exports was estimated directly from the Board of Trade figures for average values of re-exports. The two indices were combined by weighting them in proportion to their values, at current prices, in each year. These estimates, however, would be based on the 'value as declared' export series, given in the *Board of Trade Journal*, whose totals for each year are not strictly comparable with the corresponding figures appearing in the National Income White Paper, except in the case of 1938. In the event, it was considered that the difference between these two series of export values, in 1946–8, due to differences in definition, would not invalidate the use of the indices calculated from the Board of Trade figures, for deflating the National Income White Paper estimates of merchandise exports. The results are tabulated below:

Base year (=*100*)	*Price index for* 1948	*Merchandise exports at current prices* (£ million)	*Merchandise exports at* 1948 *prices* (£ million)
1938	271	533	1,446
1946	134	849	1,135
1947	118	1,083	1,277
1948	100	1,512	1,512

(*b*) ***Imports***

In the case of imports, the price relatives in the *Board of Trade Journal* refer to c.i.f. prices, so that a price index for imports calculated on the lines above would be an index of c.i.f. values. What is required for deflating the figures of merchandise imports given in the National Income White Paper is a f.o.b. index. The method chosen was to caculate the c.i.f. index, and correct the numerator according to the assumption that:

$$\Sigma p_{48}q_{38}(\text{f.o.b.}) = \Sigma p_{48}q_{38}(\text{c.i.f.}) \times \frac{\Sigma p_{48}q_{48}(\text{f.o.b.})}{\Sigma p_{48}q_{48}(\text{c.i.f.})}$$

Owing to the dispersion of errors, this was considered not to involve any great error as compared with the more technically correct formula

$$\Sigma p_{48}q_{38}(\text{f.o.b.}) = \Sigma\left[p_{48}q_{38}(\text{c.i.f.}) \times \frac{p_{48}q_{48}(\text{f.o.b.})}{p_{48}q_{48}(\text{c.i.f.})}\right]$$

for whose construction information was not available.[1]

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[1] Since the figures for total imports were used, no additional step was required to allow for re-exports, as in the case of the construction of the exports price index.

The $\Sigma p_r q_r$ (f.o.b.) corresponding to the $\Sigma p_r q_r$ (c.i.f.) had therefore to be found for each of the four years concerned.

Two series of estimates for total f.o.b. import values were available : the one contained in the Balance of Payments White Paper, *Cmd.* 7648, and the other in the National Income White Paper, *Cmd.* 7649. Neither are comparable with the ' value as declared ' totals given in the *Board of Trade Journal* except, once more, in the case of 1938; the main difference being that ' the increase in the value of goods shipped but not paid for ' is excluded, for reason of definition, from the Balance of Payments White Paper f.o.b. estimates (from which the National Income White Paper figures are derived). But for want of better information, the Balance of Payments White Paper series was taken, as being the more comparable of the two with the Board of Trade figures. And by this means, both the numerator and the denominator of the c.i.f. index were corrected, to give the required estimate of the f.o.b. indices for deflating the value of merchandise imports figures, given in the National Income White Paper.

Base year (= *100*)	*F.o.b. price index for* 1948	*Merchandise imports at current prices* (£ million)	*Merchandise imports at* 1948 *prices* (£ million)
1938	275	835	2,297
1946	133	1,057	1,458
1947	109	1,524	1,661
1948	100	1,730	1,730

These indices should not be combined with those used for deflating exports to form an estimate of the movements of the ' basic ' terms of trade since 1938. The possible error in the f.o.b.-c.i.f. margin for 1948, which is used in the calculation above, would invalidate any results so obtained. Movements in the ' basic ' terms of trade, defined as net of the effect of the c.i.f. margin, and based on f.o.b. values throughout, are mainly of theoretical interest. It would show changes in the hypothetical exchange value of a certain bundle of U.K. manufactures, typical of this country's exports, in terms of a certain bundle of foreign manufactures and commodities abroad, typical of our imports. What is of practical significance, is how much the U.K. has to pay, in terms of goods exported, for the goods which are landed for consumption in this country. And for this, the relevant terms of trade indices are those which are published in the *Board of Trade Journal*, being calculated from the simple relationship between the figures for the average value of exports, f.o.b., and imports, c.i.f. It is true, though, that it would be of the greatest interest and significance to have more precise information as to the movements of the c.i.f. margin since pre-war. It would appear, for instance, that our terms of trade have been very seriously affected by the fact that, owing to the shortage of coal for export, many ships have had to travel outward in ballast, thus greatly increasing the c.i.f. margin. Further information on this subject would tell us to what extent an improvement in the terms of trade might be expected, from an increase in the export of coal alone. And it would also be of interest to compare the official terms of trade estimates, calculated from Paasche indices, with the Laspeyre approximate indices which would be yielded by the method adopted in this paper.

From the *Board of Trade Journal*:

Paasche-type indices	1938	1946	1947	1948
Exports (including re-exports)	100	196	222	247
Total imports (c.i.f.)	100	211	258	289
Terms of Trade	100	93	86	85

Own calculations from formula explained in exports section:—

Approximate Laspeyre-type indices	1938	1946	1947	1948
Exports (including re-exports)	100	202	230	271
Total imports (c.i.f.)	100	225	265	294
Terms of Trade	100	90	87	92

This would appear to indicate that between 1938 and 1946 there was a marked negative correlation between the increase in the proportion of goods going into exports, and their price-increase since 1938; *e.g.* in 1946 machinery had a quantity index of 112, and an average value index of 175, while in the case of cotton yarn and manufactures, the relatives were respectively 42 and 301.

Since 1946, however, this correlation would appear to be positive, bearing testimony, among other things, to the qualitative success of the export drive.

(*c*) *Invisible Items*

In order to deflate ' invisible ' items, it was assumed that (i) shipping costs were 300 per cent above 1938 in 1946 and 1947, and 320 per cent above 1938 in 1948;[1] (ii) film costs were 100 per cent higher for the post-war years; (iii) Government expenditure overseas was subject to a price rise equal to the f.o.b. imports index; (iv) tourist expenditure overseas was deflated by the index implied by item 19 in Tables 21 and 22 (*Cmd.* 7649); (v) foreign tourists' expenditure in the U.K. was subject to the factor cost index for consumers' goods and services. (vi) For deflating payments of interest, profits and dividends, an index was constructed from information contained in the White Paper ' Statistical Material presented during the Washington Negotiations ' (*Cmd.* 6707) and the latest Balance of Payments White Paper (*Cmd.* 7648). This attempted to show what the payments of interest and dividends would have been in 1938, 1946 and 1947 had the rate of return on total capital investment been what it was in 1948. This is necessarily a very rough calculation, for it neglects qualitative changes in the total of capital investment, and is therefore subject to a wide margin of error.[2] (vii) In the case of ' other ' exports, no satisfactory break-down has been given in the official publications to date. The latest Balance of Payments White Paper

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[1] See *Economist*, Vol. CLI, p. 469, and Vol. CLIV, p. 32.

[2] Dr. Derksen in a paper read to the Econometric Society at Cleveland, Ohio, on Dec. 28th, 1948, recommends that net property income from abroad ' should always be deflated by an index of import prices '. His approach is, however, essentially from the ' welfare ' side, whereas our approach here is essentially a ' productivity ' one, and the only method open is to assume that the real output of oversea assets is a function of the real capital used.

(*Cmd.* 7648) describes this category as ' a miscellaneous collection of receipts and payments. The principal constituents are the overseas transactions of British oil companies, insurance, expenses on the upkeep of British enterprises abroad, commissions, royalties and private remittances '. Accordingly, since none of the price indices previously enumerated in this Appendix were held to be applicable, the 1938 figure was arbitrarily deflated by an index of 200, and those for 1946 and 1947 were taken unaltered.

* * * * * * *

In order to allocate imports by end use a number of arbitrary assumptions were made. It was assumed that one-half of imports in the Board of Trade categories IIc, IId, IIe, IIIe and IIIh, and three-quarters of imports in categories IIIc, IIId, IIIf, IIIg, and IIIs, end as investment goods in 1946–8, and can be revalued at 1948 prices by the appropriate price-relatives published in the *Board of Trade Journal.*[1] Since in 1938 a large proportion of this class of import may be assumed to have gone into rearmaments, the import-content of gross investment in that year was taken to be approximately 8 per cent (as it appeared to be in 1946). Re-exports were also deducted from the balance of visible imports (after taking out investment-good imports in the manner indicated above), and to the remainder, shipping payments were added. For the import content of visible exports, a proportion of 15 per cent was taken[2]. This figure was deducted, and the remainder distributed proportionately between personal consumption of goods and transport, Government expenditure on goods (both at national cost), and invisible exports less receipt of interest, profits and dividends from abroad. Films and tourist expenditure were allotted directly to personal consumption, and Government overseas expenditure to Government outlay. Real property income payable to foreigners was offset against invisible exports.

On these assumptions, the end use of imports can be estimated as follows :[3]

	(£ '000 million at 1948 prices)			
	1938	1946	1947	1948
Merchandise exports (and re-exports)	0.35	0.23	0.25	0.28
Invisible exports	0.22	0.16	0.17	0.20
Personal consumption	1.84	1.01	1.24	1.25
Capital investment	0.15	0.12	0.17	0.18
Government expenditure	0.27	0.66	0.46	0.31
	2.83	2.18	2.29	2.22

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[1] The figure for investment-good imports so obtained is, of course, c.i.f. For lack of particulars about the c.i.f. margin of this class of goods, the overall margin described above was taken to reduce it to the corresponding f.o.b. value.

[2] Following the P.E.P. Report, *Britain and World Trade*, p. 61.

[3] It must be noted that the estimates in the above table are not made for their intrinsic value. See BULLETIN, Vol. 10, p. 331. (Booklet, p. 77).

TABULAR APPENDIX.

EDITORIAL NOTE

Tables comparing the broad trends of production, prices and wages, the volume of foreign trade and the supply of coal for a number of European countries, the United Kingdom and the U.S.A. are given below. For some countries more up-to-date figures are available than for others. The index numbers are based as far as possible on 1938.

Explanation of symbols : ... the figure is not available.

(—) figures provisional or approximate. — figure is negligible.

TABLE I. *Industrial Production* (*or Employment*)

Index Numbers 1938=100

Index Number	Monthly Averages 1939	1945	1946	1947	1948	1948 Nov.	Dec.	1949 Jan.	Feb.	Mar.
Industrial Production[1]										
U.S.A.[2]	122	228	191	210	216	219	216	215	212	207
United Kingdom[3] [4]	104[17]	...	100	108	121	129	123	124[12]	132[12]	131
France[4]	...	...	79	95	109[12]	111[12]	116[12]	117[12]	122	124
Belgium[5]	95	...	...	96	103	107	108	104	110	...
Netherlands	111	32	74	94	113	126[12]	127[12]	118[12]	(113)	(129)
Denmark (rev.)	105	74	101	116	129	143	124	128	136	137
Sweden[6]	109	112	135	138	143	146	146	146	147	...
Norway[4]	107	69	100	115	125	134	125	135	145	141
Finland[7]	97	86	105	117	135	...	141	...	...	...
Poland[8]	...	...	91	121	...	149	138	...	...	...
Czechoslovakia[9]	...	...	...	87	103	111[12]	105	105[12]	109[12]	108
Bulgaria[10]	100	112	115	137	...	204	...	...	...	...
Italy[11]	...	...	...	93	98	102	102	95	91	97
Germany[16]	...	...	33[12]	40	60	75	79	81	80	90
Austria[13]	...	...	...	61	93	101	101	94	96	110
Industrial Employment :										
Switzerland[14]	98	110	123	134	136	...	134	...	...	130
Great Britain					100[15]		101	102	102	...

Sources : Official Statistics. For *Belgium* : Institut de Recherches Economiques et Sociales, Louvain ; for *Sweden* : Sveriges Industriförbund ; for *Germany* : Control Commission (British Element) ; for *Austria* : Monatsberichte des Oest. Institutes für Wirtschaftsforschung.

[1] Mining and Manufacturing, except Denmark (manufacturing only), France and Netherlands (mining, manufacturing and public utilities) ; see also Notes 3 and 16.

[2] Adjusted for seasonal variations.

[3] Interim Index of industrial production (mining, manufacturing, building and public utilities) 1946=100. [4] Adjusted for number of working days.

[5] Revised Index (l'Institut de Recherches Economiques et Sociales, Louvain), 1936–1938=100.

[6] Annual Index of Kommerskollegium linked to monthly index of Sveriges Industriförbund. Adjusted for seasonal variations and for numbers of working days.

[7] New series as published quarterly by Kansallis-Osake-Pankki. Covers mining, manufacturing, electricity, gas. Annual index as published by Finnish Government. Similar scope to quarterly index. Quarterly indices adjusted by U.N. Monthly Bulletin so that average equals annual index.

[8] Institute for Economic Research. Annual indices include the production of sugar which is not included in monthly indices.

[9] Provisional index (revised) 1937=100. [10] 1939=100.

[11] Same series as April BULLETIN, as re-based on 1938 by Central Statistical Office of Italy. [12] Revised figure.

[13] Revised series. Industrial key materials and consumers' goods industries. 1937=100.

[14] Wage earners employed in manufacturing and building. Quarterly index figures.

[15] New series. June 1948=100. Old series, June 1948=106 on base June 1939=100.

[16] Bizonal Area. 1936=100. All branches of industry, including mining and public utilities, except building and food processes. [17] 1938.

Table II

Wholesale Prices[1]

Index Numbers : 1938 = 100

Index Numbers		Monthly Averages 1939	1945	1946	1947	1948	1949 Jan.	Feb.	Mar.	April	May
U.S.A.	a[2]	98	135	154	193	210	204	201	202	200	
U.K.	a	101	167	173	189	216	218	218	217	223	228
	b[3]	91.5	138	142	155	178	180	180	179	184	188
France	a	105	375	648	989	1712	1946	1898[4]	1872	1847	1892
	b	92	(275)	189	289	277	315	308	304	299	306
Holland	a	102	177	245	266	276	289	289	(288)	...	...
	b	99	(122)	169	183	189	197	197	(197)	...	...
Switzerland ...	a	104	206	201	209	217	215	214	212	209	206
	b	103	...	204	213	221	219	218	216[4]	211	...
Sweden	a	103	174	168	179	192	196[4]	196[4]	193	...	...
	b	98	...	173	199	212	216[4]	216[4]	214	...	...
Denmark	a	105	190	187	207	227	234	233	233	233	...
	b	98	...	180	198	216	223	222	222	222	...
Norway	a	102	177	169	175	181	183	183	183	183	...
	b	97	...	138	144	148	150	150	150	150	...
Finland	a	105[4]	386	605	727[4]	960[4]	959[4]	955[4]	947	944	...
	b	98	...	207	248	326	326	324	324	322	...
Czechoslovakia ...	a	115	172	301	316	(330)	...	...	...	...	...
	b	114	...	170	181	(190)	...	...	...	...	...
Italy	a	105	2060	2883	5159[4]	5443[4]	5698[4]	5656	5556	...	...

[1] Prices expressed in national currencies and in U.S. dollars at official rates.

[2] a = in national currency. [3] b = in U.S. currency. [4] Revised figure.

TABLE III. *Wages*

Index Numbers[1]	Monthly Averages 1939	1945	1946	1947	1948	1949 Jan.	Feb.	Mar.	April
U.S.A.[2]	101	163	173	195	212	220	220	219	219
United Kingdom[3]	...	149	161	168	176	180	180	180	180
Switzerland[4]	100	146	160	174	182	...	...	183	...
France[5]	...	328	448	525	799	...	...	889	...
Netherlands[6]	100	131	163	168	177	183[8]	...	183	...
Czechoslovakia[7]	100	182	304	314	316	...	...	...	...

[1] Base periods : U.S.A. and France : 1938=100 ; United Kingdom : September 1939=100 ; Switzerland : January–August 1939=100 ; Netherlands : 1938–9=100 ; Czechoslovakia ; March 1939=100. [2] Average hourly earnings in manufacturing.

[3] Weekly wage rates ; Ministry of Labour (all industries).

[4] Hourly rates in industry ; quarterly figures.

[5] Hourly rates in the metal industry in the Paris region. The figures for 1948 refer to the average of the quarters. [6] Hourly rates in industry. Men only.

[7] Hourly rates in manufacturing. [8] Revised figure.

TABLE IV. *Foreign Trade.* Volume Index[1]

Index Numbers		Monthly Averages 1939	1945	1946	1947	1948	1948 Dec.	1949 Jan.	Feb.	Mar.	Apr.
U.S.A.	Imports	114	130	139	133	150	179[3]	146	140	160	...
	Exports	105	183	191	255	197	247	208	201	227	...
U.K.	Imports	97	62	69	78	81	80[2]	...	...	82[2]	...
	Exports	94	46	99	109	136	147[2]	...	...	155[2]	(140)
France	Imports	88	34	112	105[3]	101[3]	108	104	106	109	...
	Exports	99	10	43	83	96	111	114[3]	135	131	...
Switzerland	Imports	118	31	105	147	147	146	124	111	127	112
	Exports	97	57	101	115	126	170	106	113	118	119
Sweden	Imports	117	30	94	124	113	105	88	78	...	...
	Exports	108	50	66	73	85	102	95	74	...	...
Norway	Imports	111	46	78	118	100	135	66	126	111	...
	Exports	108	19	61	81	81	85	80	82	110	...
Poland[4]	Imports	...	97[3] [5]	159[3]	128[3]	136[3]	128[3]	...	...	...	...
	Exports	...	17[5]	34[3]	55[3]	100[3]	159[3]	...	...	...	...
Czech'vakia.[6]	Imports	...	...	35	77	99	83	...	...	102	...
	Exports	...	...	26	56	75	91	...	...	85	...
Hungary	Imports	121	1	17	52	62	71	...	...	...	...
	Exports	116	...	15	26	43	93	...	...	...	...
Austria[6]	Imports	...	...	...	24	47	67	55	60	81	...
	Exports	...	...	...	29	54	73	68	63	79	...

[1] Deflated values (1938=100). [2] Average of quarter. [3] Revised figure.

[4] From the Statistical Tables of the Polish Institute for Economic Research.

[5] Monthly average of 3rd and 4th quarter. [6] 1937=100.

TABLE V. *Production of Steel* (*Ingots and Castings*)

Thousand metric tons	Monthly Averages 1937	1938	1946	1947	1948	1948 Dec.	1949 Jan.	Feb.	Mar.	Apr.
U.S.A.	4282	2400	5035	6418	6693	7050	7424[3]	6786[3]	7609	7063
Great Britain ...	1101	881	1074	1057	1260	1433[1]	1175	1264	1590[1]	1236
France	660	518	367	478[3]	604	711[3]	733[3]	717[3]	825	751
Belgium	322	190	190	241	326	364	370	359[3]	416	...
Luxembourg ...	209	120	108	143	204	243	228	226	254	...
Sweden	94	83	101	99	105	132[3]	...	...	115	...
Poland	122	120	102	132	...	...	...	...	...	...
Czechoslovakia ...	192	153	139	190	...	...	...	...	...	...
Hungary	55.4	54.0	29.4	49.7	...	...	...	...	...	...
Italy	175	194	96	142	177	168	159	145	...	...
Austria	54.1	...	15.6	29.7	54.0	58.3	62.9	63.8	71.9	...
Germany :										
Bizone[3] ...	1197[2]	1456	212	251	455	624	663	674	765	...
French Zone ...	...	...	25	63	110	145	152[3]	150	...	...

Source : U.N.O. Monthly Bulletin and other official statistics.

[1] Five weeks. [2] 1936. [3] Revised figure.

TABLE VI. *Coalmining and Supplies*

A. Hard Coal Output. Monthly Figures or Averages[1]

Million Metric tons	Average			Dec.	1949					Last m. as % of m. av. 1937
	1946	1947	1948	1948	Jan.	Feb.	Mar.	Apr.	May	
U.S.A.[2]	44.8	52.0	49.2	49.6	46.2	43.0	31.9	...	...	77
United Kingdom	16.1	16.7	16.7	20.1[4]	16.8	17.5	22.0[4]	17.0	19.0	93
West Germany[3] ...	4.5	5.9	7.3	8.1[7]	8.2	7.9	8.9	7.9	8.4	73
France (incl. Saar)	4.6	4.6[7]	4.6	5.4[7]	5.5	5.3	6.0	5.5	5.5	115
Belgium	1.9	2.0	2.2	2.4	2.4	2.3[7]	2.6	2.4	2.4	96
Holland	0.7	0.8	0.9	0.9	0.9	0.9	1.0	0.9	1.0	81
Poland	3.9	4.9	5.9	6.0	6.0	5.7	6.4	5.9	6.2	112
Czechoslovakia ...	1.2	1.4	1.5	1.5	1.5	1.4	1.6	1.4	1.4	102

B. Total Imports of Solid Fuels including Bunkers (ton for ton). Monthly Figures or Averages

Thousand Metric tons	Average			1948	1949					Last m. as % of m. av. 1937
	1946	1947	1948	Dec.	Jan.	Feb.	Mar.	Apr.	May	
France	904	1373	1445	1462	1419	1759	1738	1642	1772	71
Belgium	262	462	224	140	96[7]	98	101	74	89	13
Holland	275	330	324	326	275	342	409	359	487	64
Luxembourg ...	154	187	253	285	270	260	288	294	289	92
Norway	152	203	167	189	111	171	159	95	127	44
Denmark	314	363	308	347	430	492[7]	422	347	487	97
Sweden	297	496	585	601	581	559[7]	604	473	371	50
Switzerland ...	128	210	220	197	166	148	147	147	199	68
Italy	476	757	656	552	501	543	858	700	...	65
Finland	78	132	190	146	46	15	11	16	69	37
Portugal	50	76	70	74	113	70	122	62	82	72
Austria	...	...	...	482	552	510	526	523	507	179
Czechoslovakia ...	13	88	179	260	295	254	254	231	284	236

C. Exports of Solid Fuels excluding Bunkers (ton for ton). Monthly Figures or Averages.

Thousand Metric tons	Average			1948	1949					Last m. as % of m. av. 1937
	1946	1947	1948	Dec.	Jan.	Feb.	Mar.	Apr.	May	
U.S.A.										
Total Exports ...	4105	5919	4124	2512	2218	2180	...	...	...	...
Expts. to Europe[6]	1370	2811	...	824	939[7]	1231	1302	1010	...	...
Great Britain ...	420	96	963	1283	1162	1183	1110	1016	1192	33
West Germany[3] ...	972	880	1463	1473	1665	1622	1848	1853	1954	63
France	33	38	30	36	35	33	63	129	162	74
Saar[5]	119	115	...	60	61	65	66	...	...	50
Belgium	78	172	128	121	55	56	55	53	72	14
Holland	37	48	82	76	54	73	65	73	88	15
Poland	1349	1922	2493	2678	2764	2643	2897	2800	3022	...
Czechoslovakia ...	51	131	246	311	341	307	287	262	302	71

Source : European Coal Organisation ; United Nations Monthly Bulletin of Statistics ; Current Business (U.S.A.)

[1] Calendar months. [2] Including a small quantity of lignite. [3] British Zone.

[4] Five weeks ; other months four weeks.

[5] Figures for 1946 and 1947 include exports to France ; figures for 1948 exclude exports to France and to French Zone and Bizones of Germany.

[6] Reported arrivals of solid fuels in Europe from U.S.A. [7] Revised figure.